

REMARKS

Applicant appreciates the thorough review and indication by Examiner that claims 10, 16-18, and 20 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim. The Examiner rejected claims 1-9, 11-15 and 19 under the provisions of 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,936,397 to William McDonald, et al. (hereinafter "McDonald" or "the McDonald patent"). Applicant respectfully requests reconsideration of the Examiner's rejections because Applicant respectfully submits that McDonald does not teach or disclose every element of the rejected claims.

Claims 1 and 11 include the elements of "a concentric string of conduit...defining an inner passage and an annular passage," and "an annular valve assembly carried in the annular passage that is selectively actuated between open and closed positions for regulating fluid flow through the annular passage." As discussed in more detail herein, the McDonald patent does not disclose or suggest a concentric string of conduit that defines both an inner passage and an annular passage. The McDonald patent also does not disclose or suggest an annular valve assembly carried in the annular passage. Therefore, Applicant respectfully submits that claims 1-9 and 11-15 are in condition for allowance as they are not anticipated by McDonald. Method claim 19 also includes the steps of "providing a concentric string of conduit having an inner passage and an annular passage, and an annular valve carried in the annular passage," and then opening and closing the annular valve by "supplying" or "discontinuing" the "fluid pressure in the annular passage above the annular valve" which are not performed by the apparatus disclosed in McDonald. Accordingly, Applicant respectfully submits that claim 19 is not anticipated by McDonald and is in condition for allowance.

The McDonald Patent

McDonald discloses an earth drilling tool apparatus that is suspended from a string of drill string S, and in particular an air motor operated 11 drilling tool 10 coupled with a control valve 20. *See* the McDonald patent (Col. 1: ll. 7-12, Figures 1 and 2). The McDonald drilling tool 10 is operated with air that is supplied through drill string S from a compressed air source 16 at the surface. *See Id.* (Col. 2: ll. 31-35, Col. 7: ln. 17 – Col. 8: ln. 21, Figures 1 and 2). McDonald discloses that drill pipe string S is "hollow" for supplying air from air source 16 to motor section 11 of drilling tool 10. *See Id.* (Col. 2: ll. 31-35, Figures 1, 2, and 5A-5B). McDonald does not disclose or illustrate drill pipe string S defining inner and annular passages – rather it is merely a hollow tubular string of pipe.

Control valve 20 regulates air flow from drill pipe string S into drilling tool 10 in order to control the operation of drilling tool 10. *See Id.* (Col. 1: ll. 51-56). McDonald discloses two embodiments for control valve 20: (1) the "tool joint" embodiment shown in Figures 4A and 4B; and (2) the "carriage type" embodiment shown in Figures 5A and 5B. *See Id.* (Col. 1: ll. 7-12, Figures 1 and 2). In the "tool joint" embodiment shown in Figures 4A and 4B, control valve 20 is part of a sub, and screws onto the lower end of drill string S and into the upper end of drilling tool 10. *See Id.* (Col. 5: ll. 58-63, Col. 4: ll. 35-41, Figures 4A and 4B). In the "carriage type" embodiment shown in Figures 5A and 5B, control valve 20 includes a substantially similar valve assembly that is placed within the bore of drill pipe at the threaded connection with another section of the string S of drill pipe. *See Id.* (Col. 5: ll. 53-63, Col. 4: ll. 42-50, Figures 5A and 5B (Applicant believes the McDonald reference to "FIGS. 9A and 9B" was merely a typographical error and should have been to Figures 5A and 5B, which were the last two figures in the McDonald patent)).

McDonald's control valve 20 includes a central bore 24 that is in fluid communication with air source 16. *See Id.* (Col. 4: ll. 57-63, Figures 4A-5B). Central bore 24 is in fluid communication with an enlarged smooth bore 25 when control valve 20 is in its open position shown in Figures 4B and 5B. *See Id.* (Col. 4: ll. 57-66). A conical valve 51 precludes fluid communication between bores 24 and 25 when control valve 20 is in its closed position shown in Figures 4A and 5A. Conical valve 51 is part of an upper portion of piston valve member 41 that slides longitudinally within enlarged bore 25 of control valve 20. *See Id.* (Col. 5: ll. 38-41).

A spring retainer and valve guide 31 is positioned within a lower portion of enlarged bore 25 to guide piston valve member 41. *See Id.* (Col. 5: ll. 7-13, Figures 4A-5B). A spring 52 is positioned between an upward facing shoulder of valve guide 31 and a downward facing shoulder of piston valve member 31 in order to bias piston valve member 41 toward the closed position shown in Figures 4A and 4B when pressurized air is not supplied through drill pipe string S and bore 24. *See Id.* (Col. 5: ll. 42-47, Col. 7: ln. 65 – Col. 8: ln. 3, Figures 4A-5B). Both valve guide 31 and piston valve member 41 sealingly engage the interior surface of enlarged bore 25. *See Id.* (Col. 5: ll. 13-18, Col. 5: ll. 31-36, Figures 4A-5B). Therefore, air does not flow into the chamber housing spring 52 from string S. Rather, when the pressurized air forces piston valve member 41 downward to its open position, the air communicates from bores 24,25 through apertures 50 in piston valve member into central bore 47. *See Id.* (Col. 5: ll. 19-41, Col. 7: ln. 65 – Col. 8: ln. 6, Figures 4A-5B). The air then communicates to motor section 11 of drilling tool 10. *See Id.* (Col. 8: ll. 4-6, Figures 4A-5B). Relief ports 30 communicate with the sealed chamber housing spring 52 in order to reduce the differential pressure necessary to move piston valve member 41 and open control valve 20. *See Id.* (Col. 5: ll. 4-6, Col. 5: ll. 6-15, Figures 4A-5B). The McDonald patent does not disclose, illustrate, or suggest placing a valve

instead of the seals with piston valve member 41 for communication with the chamber housing spring 52.

Claims 1-9 and 11-15

Claims 1 and 11 include the elements of "a concentric string of conduit...defining an inner passage and an annular passage," and "an annular valve assembly carried in the annular passage that is selectively actuated between open and closed positions for regulating fluid flow through the annular passage." In order to anticipate claims 1 and 11, the cited art must disclose each and every limitation, by a preponderance of the evidence, in order to reject a claim under the provisions of 35 U.S.C. § 102. *See* MPEP 706.02. Applicant respectfully submits that the McDonald patent does not teach either of these elements.

McDonald's drill pipe string S does not teach that it defines an inner passage and an annular passage. McDonald's valve 20 also does not teach such an arrangement. Applicant respectfully submits that the chamber housing McDonald's spring is not an annular passage defined in a string of conduit. However, even if the Examiner were to consider this chamber an annular passage defined by a concentric string of conduit, there is no valve carried in the chamber housing McDonald's spring 52 for regulating fluid flow through the annular passage. McDonald's valve housing is sealed from McDonald's drill pipe string S and merely vents to the atmosphere in order to lessen differential pressures across valve 51 and piston valve member 41. Application also respectfully submits that valve 51 and piston valve member 41 are not "an annular valve assembly carried in the annular passage that is selectively actuated between open and closed positions for regulating fluid flow through the annular passage." Accordingly, Applicant respectfully submits that the McDonald patent does not anticipate claims 1 and 11 because it fails to teach each and every claim limitation. Claims 2-9 depend from claim 1 and

claims 12-15 depend from claim 11. Therefore, Applicant respectfully submits that claims 1-18 (including claims 10 and 16-18 that were previously indicated as allowable) are in condition for allowance, and respectfully requests that the Examiner remove the rejection of claims 1-9 and claims 11-15 based upon the McDonald patent.

Claim 19

Claim 19 includes the method steps of "providing a concentric string of conduit having an inner passage and an annular passage, and an annular valve carried in the annular passage," and then opening and closing the annular valve by "supplying" or "discontinuing" the "fluid pressure in the annular passage above the annular valve." In order to anticipate claim 19, the cited art must disclose each and every method step, by a preponderance of the evidence, in order to reject a claim under the provisions of 35 U.S.C. § 102. *See* MPEP 706.02.

As discussed above with respect to claims 1 and 11, the McDonald patent does not disclose "providing a concentric string of conduit having an inner passage and an annular passage." The McDonald patent also does not disclose "providing... an annular valve carried in the annular passage." Every claim element is important, and without providing the annular passage and annular valve features, McDonald also cannot anticipate the opening and closing the annular valve steps. Therefore, Applicant respectfully submits that claim 19 is in condition for allowance, and respectfully requests that the Examiner remove the rejection of claim 19 based upon the McDonald patent.

Claims 10, 16-18, and 20 are dependent from claims 1, 11, and 19, and should therefore be in condition for allowance without amendments as suggested by the Examiner. Therefore, Applicant respectfully requests that the Examiner remove the pending objections of claims 10, 16-18, and 20.

CONCLUSION

Applicant respectfully submits that claims 1-20 are all in condition for allowance. Reconsideration of the application and allowance of all claims are respectfully requested, and Applicant respectfully requests the issuance of a Notice of Allowance.

Respectfully submitted,

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